REMARKS:

Claims 11 to 15 have been renumbered as pointed out by the Examiner.

A minor typographical error has been noted and corrected in the specification.

The only objection by the Examiner to the application arises under 35 U.S.C. 112 wherein the Examiner alleges that the specification is incomplete since it does not disclose sufficient information from a person skilled in the art to manufacture a product as claimed. In particular the Examiner refers to the lack of technology for printing batteries, conductive paths and powered elements.

It is submitted that the Examiner is underestimating the knowledge of the person skilled in this art in December 2003.

In regard to the printing of batteries, the company Paper Power Ltd. of Petah Tikva, Israel announced in July 2001 in New Scientist (copy attached) the release of "A new type of low-power battery that does not require a case and is thin enough to be printed on paper." The same company has a series of patents published before this date providing information as to how such products can be manufactured.

Also the company T-Ink LLC of New York has disclosed in their patent 6,641,860 issued November 2003 the printing of conductors on paper (column 2, line 12).

These documents would of course be well known to the notional person skilled in the art who has access to all relevant material in the field.

The Examiner has raised as evidence for his allegation merely the statement in a recent "Printed Electronics Review" that the technology is primitive. However the same review states that products annually displayed included "electronically active lottery tickets" (copy of page attached with the relevant line marked). Thus the writer when referring to this field was of the view that the level of complexity of lottery tickets is primitive and mentions also novelty items like "talking table clothes". Thus it is clear that this paper was not included to mean that the technology was primitive so that the lottery ticket product could not be formed, just that the technology could not yet make complex product such as microchips.

The Examiner will of course note that this disclosure of Lottery Tickets is not prior art.

Yet further, the present application does not require that the powered element be printed and there is no doubt that suitable LEDs and speakers have been available for many years and well before 2003.

Yet further the specification discloses a technique for forming the switch using electrically conductive latex inks which are scratched. Such inks are well known and their conductance is a well known characteristic.

It is submitted therefore that the technology to make a "printable" electronic circuit such as might be found on a lottery ticket or other novelty item was available in December 2003 at least from the above suppliers.

The invention herein is the application of these known technologies to a lottery ticket to include the items specified. As noted by the Examiner this

combination is not shown nor suggested in the prior art and the mere existence of this technology itself at the time does not render obvious its application in a novel combination in a lottery ticket.

It is submitted therefore that this application is in good order for allowance.

Respectfully submitted

MICHAEL JOHN BRICKWOOD ET AL

PER: _____
Adrian D. Battison
Registration No: 31,726

ADB/ll
July 28, 2006
Enc.(2)

Adrian D. Battison Winnipeg, Manitoba, Canada
Telephone (204) 944-0032 - FAX (204) 942-5723

CERTIFICATION OF FACSIMILE TRANSMISSION

I hereby certify that this paper is being facsimile transmitted to the United States Patent and Trademark Office, Fax No. (571) 273-8300, on February 28, 2006

LYNN LEATHERDALE

Lynn Leatherdale

The World's No.1 Science & Technology News Service

Printable battery rolls off the presses

10:10 26 July 2001
From New Scientist Print Edition. Subscribe and get 4 free issues.
Will Knight

A new type of low-power battery that does not require a case and is thin enough to be printed on paper will soon be making its debut in shops.

The power source relies on an undisclosed mixture of chemicals to produce 20 milliamp-hours at a terminal voltage of 1.6 volts for every square centimetre that is printed. The battery material is roughly 0.5 millimetres thick and would, if mass-produced, cost just a few cents per square inch, according to Israeli-based company Power Paper.

The new battery consists of three different layers. It has conventional zinc manganese-dioxide components as anode and cathode. Sandwiched in between, the cell's chemical power source remains a closely guarded secret.

Paper Power claims the material is non-toxic and non-corrosive, making the battery safe to use without casing.

Secret Formula

"We call it our Coca-Cola formula," says Power Paper's general manager Zohar Sagi. "Technically it will work like any other battery, but you can cut the battery into any size and shape for your product."

The battery will first be used to power flashing lights and jingles on novelty cards and other promotional products. The company's Hong Kong subsidiary is currently manufacturing the first of these novelty items, which include greeting cards and mouse pads.

Sagi believes that eventually the battery will be used to power electronic components built into smart labels and credit cards, allowing these tiny devices to store, display and transmit data.

Taking temperatures

The battery could also be used within health care to power tiny medical diagnostic equipment and even drug delivery patches.

A German healthcare company called KSW Microtech is already using the battery to power monitoring of the

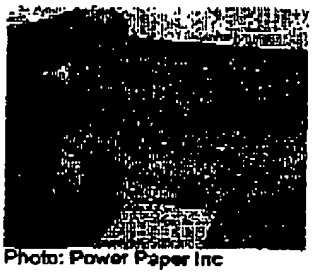


Photo: Power Paper Inc

Related Articles

Tiny radio chip gives paper ar
4 July 2001

Electronic paper now works lr
to a fine filter
6 June 2001

Search New Scientist
Contact us

Web Links

Power Paper
Electrochemical power source
Chemistry Department at the Andrews
North Carolina State Universi

temperature of blood supplies. The company has fitted a small chip with a thermometer to the side of each blood bag that wirelessly transmits records of the bag's temperature history to a nearby computer.

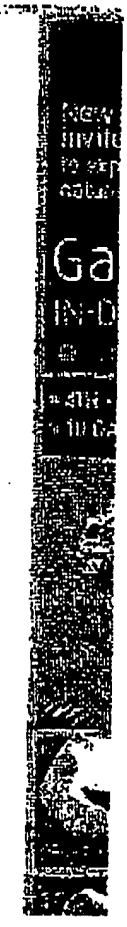
John Irvine, of the Centre for Advanced Materials at the University of St Andrews, says that the battery could also be useful to electronics manufacturers, who could incorporate the power source into integrated circuits.

Though the identity of the chemical power source has not been revealed, North Carolina State University chemistry researcher Saad Khan says there are a number of research groups working on polymer battery materials. But, he says, most of these are could not be described as entirely non-toxic.

Printable version Send to a friend

RSS feed XML

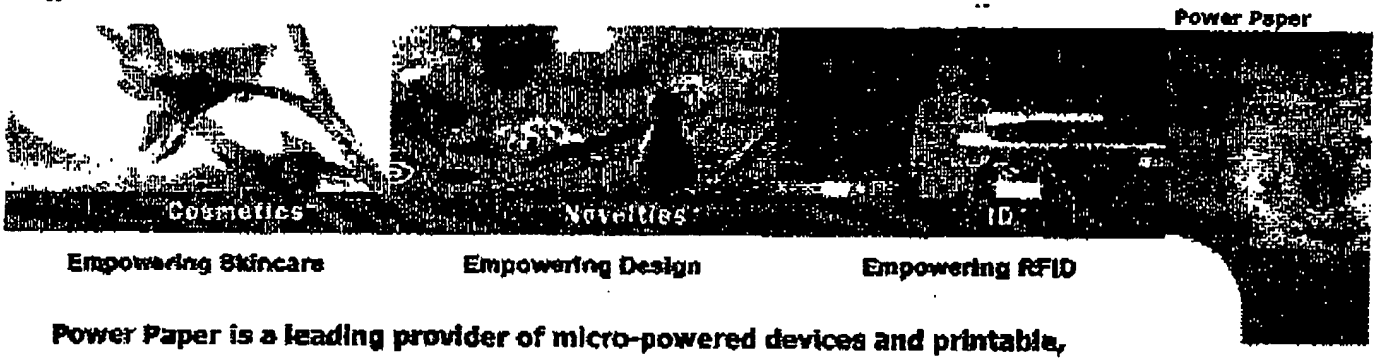
- **For exclusive news and expert analysis every week subscribe to New Scientist Print Edition**
- For what's in New Scientist magazine this week see contents
- Search all stories
- Contact us about this story
- Sign up for our free newsletter



Power Paper Announces Availab of First Battery-Assisted UHF RFID Chips

Power Paper

+ About + Solutions + Technology + Partners + News + Careers + Contact

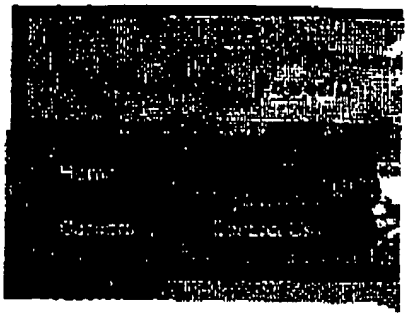


Empowering Skincare Empowering Design Empowering RFID

Power Paper is a leading provider of micro-powered devices and printable, thin, flexible and environment-friendly batteries.

Power Paper Ltd., 21 Yegia Kapayim Street, Kiryat Arye, Petah Tikva, P.O.B. 3153, Israel 49130
Tel: +972-3-920-4208 Fax: +972-3-920-4222

POWER PAPER®



About Solutions Technology Partners News

Power Paper Advantage
Battery Specifications
Team

Technology

Thin and Flexible Micro-Powered Devices: A Growing Opportunity
The worldwide trend in electronics, automation, communication, and health-care products is moving towards smaller, smarter, thinner, flexible and mass-produced devices. This development is creating a growing need for low-cost thin and flexible microelectronic solutions including micro-power sources that are not subject to size or design constraints. Frequently, the size and structure of the energy source has limited the types of applications that can be designed and developed. Standard batteries, which contain hazardous and toxic chemical components such as lithium, are encased in metal foil or steel, rendering them unusable for applications that must be lithe and bendable, such as bandages, medical patches, labels, or paper-like, pliant products.

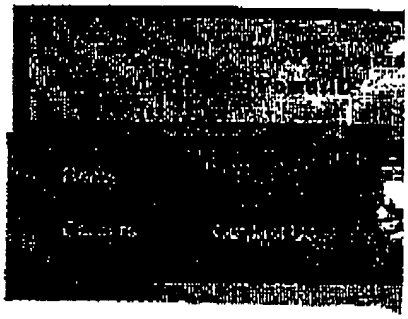
The Power Paper Solution
Power Paper has developed a breakthrough technology platform that enables the mass production of low-cost, thin and flexible energy cells capable of powering a host of applications. Power Paper's core technology is an innovative process that enables the printing of caseless, thin, flexible and environment-friendly energy cells on a polymer film substrate, by means of a simple mass-printing technology and proprietary inks. Power Paper cells are composed of two non-toxic, widely-available commodities: zinc and manganese dioxide. The cathode and anode layers are fabricated from proprietary ink-like materials that can be printed onto virtually any substrate, including specialty papers. The cathode and anode are produced as different mixes of ink, so that the combination of the two creates a 1.5-volt battery that is thin and flexible. Unlike conventional batteries, the Company's power source does not require casing. The Company couples its ultra-thin, flexible power source with complementary thin, flexible polymer displays, integrated circuits, and packaging technologies.

Power Paper's energy cells are environment-friendly and safe, containing no mercury or other heavy metals. The materials used in the Company's cells are classified by the U.S. federal government as a non-hazardous waste, disposable after use in normal municipal waste facilities, making the Company's energy cells an ideal solution for mass quantities of disposable thin and flexible micro-powered products.

Currently Power Paper offers four types of standard batteries, which are 1.5 volts, 0.5 mm thick, and feature a flat power discharge. Multiple matching cells can be stacked or located side by side for increased voltage and current requirements. In addition, customized batteries can be designed by Power Paper and mass-produced to fit the size, thickness and form factors required for the design of any product.

Power Paper Ltd., 21 Yegia Kapayim Street, Kiryat Arye, Petah Tikva, P.O.B. 3353, ISRAEL 49130

POWER PAPER®



Technology

Battery Specifications

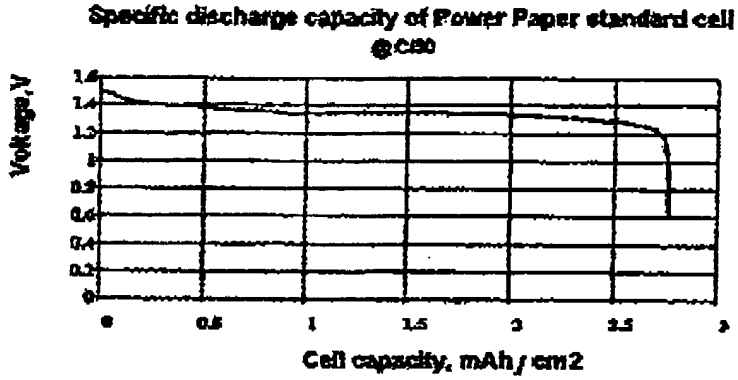
Currently Power Paper offers four types of standard batteries, which are 1.5 volts, 0.6-0.7 mm thick, and feature a flat power discharge. Multiple matching cells can be stacked or located side by side for increased voltage and current requirements. In addition, customized batteries can be designed by Power Paper and mass-produced to fit the size, thickness and form factors required for the design of any product.

Power Paper's Standard Cells

Power Paper	STD-1	STD-2	STD-3	STD-4
Electrical Characteristics				
Nominal Voltage	1.5 V	1.5 V	1.5 V	1.5 V
Nominal Continuous Current	0.6 mA	1 mA	0.5 mA	0.03 mA
Nominal Capacity	15 mAh	30 mAh	30 mAh	13 mAh
Nominal Internal Resistance	15 Ohm	15 Ohm	15 Ohm	50 Ohm
Nominal Peak Pulse Discharge Current	15 mA[1 msec]	30 mA [1 msec]	15 mA[1 msec]	6.25 mA [1 msec]
General Characteristics				
Chemical System	Zinc manganese dioxide	Zinc manganese dioxide	Zinc manganese dioxide	Zinc manganese dioxide
Outline Dimensions	39 mm Ø	55 mm Ø	39 mm Ø	29 mm x 23 mm
Thickness	0.6 mm (typical)	0.6 mm (typical)	0.7 mm (typical)	0.7 mm (typical)
Allowable Bending Radius *	25 mm	25 mm	25 mm	25 mm
Operating Temperature Range	-20°C to +60°C (-4°F to +140°F)	-20°C to +60°C (-4°F to +140°F)	-20°C to +60°C (-4°F to +140°F)	-20°C to +60°C (-4°F to +140°F)
Shelf Life	3 years	3 years	3 years	3 years

*Withstands ISO standard no. 10373 - mechanical test for credit cards.

The STD-1 is a low cost, small size model, ideally designed for very-low to low current drain applications. The STD-2 is a medium cost, medium sized model, designed for low to moderate current drain applications. The STD-3 has similar dimensions to STD-1, however it offers double the capacity. The STD-4 is a miniaturized model, offering very-low current drain. Multiple matching cells can be stacked or located side by side for increased voltage and current requirements.



Recommended Storage Conditions

- Recommended storage temperature is room temperature (18° - 25° C / 64° - 77° F)
- Storing in temperatures higher than 40° C / 104° F may shorten the battery shelf life. For example, storing the battery for 10 days (240 hours) at 45° C / 113° F reduces the shelf life by one month.

Inks used in the manufacture of the Power Paper power source include the following:
Current Collector Ink 2501 (P/N: 0002.25.01 (20-017-000001))
Zinc Anode Ink 2101 (P/N: 0002.21.01 (20-015-000001))
Manganese Dioxide Cathode Ink 2201 (P/N: 0002.22.01 (20-014-000004))
Electrolyte 2301 (P/N: 0002.23.01 (20-016-000001))
SP Electrolyte 2302 (P/N: 0002.23.02 (20-016-000002))

Power Paper Ltd., 21 Yagia Kapayim Street, Kiryat Arye, Petah Tikva, P.O.B. 3363, ISRAEL 49130
Tel: +972-3-920-4200 Fax: +972-3-920-4222